The Geography of Bird Study.

O. A. STEVENS, FARGO, N. D.

Some time ago the writer undertook to make a brief survey of the work which was being done by the various organizations interested in bird study and protection. The present article is an attempt to show the relative interest in birds in different parts of the United States and to offer some reasons for such distribution. A tabulation of the reports in Bird Lore for December 1917, supplemented by those of 1918 and 1921 gives the following result:

	1917	1918	1921
State Audubon societies sending reports	20	17	14
State Audobon societies affiliated but not reporting	6	6	8
Local clubs sending reports	42	42	49
Local clubs affiliated but not reporting	53	72	76

The reports for three years are included as a check on the general trend of the data, rather than for a comparison of the three years. The distribution of these among the different states is shown on the accompanying map, but in order to simplify the details, the number of affiliated clubs for 1921 only is represented. The result may not be quite accurate but is certainly a general index to the interest in birds.

Nine states are entirely blank and about an equal number nearly so. Barely one-half have a state organization. The question arises, what is the function of a state organization, and what is its relation to the local clubs. In some, notably, New York, we see a fine development of the latter without the former. Probably different conditions would be met equally well by diverse organizations. It seems to the writer that the local club is the natural and necessary source of interest but that there should be a real place for the state association in uniting these. The number of organizations for 1921 shows an increase in fourteen states and a decrease in eight as compared with 1917, but the difference is small in most cases.

The distribution of Junior Audubon members provides a second and different method of estimation. Of the 18 states

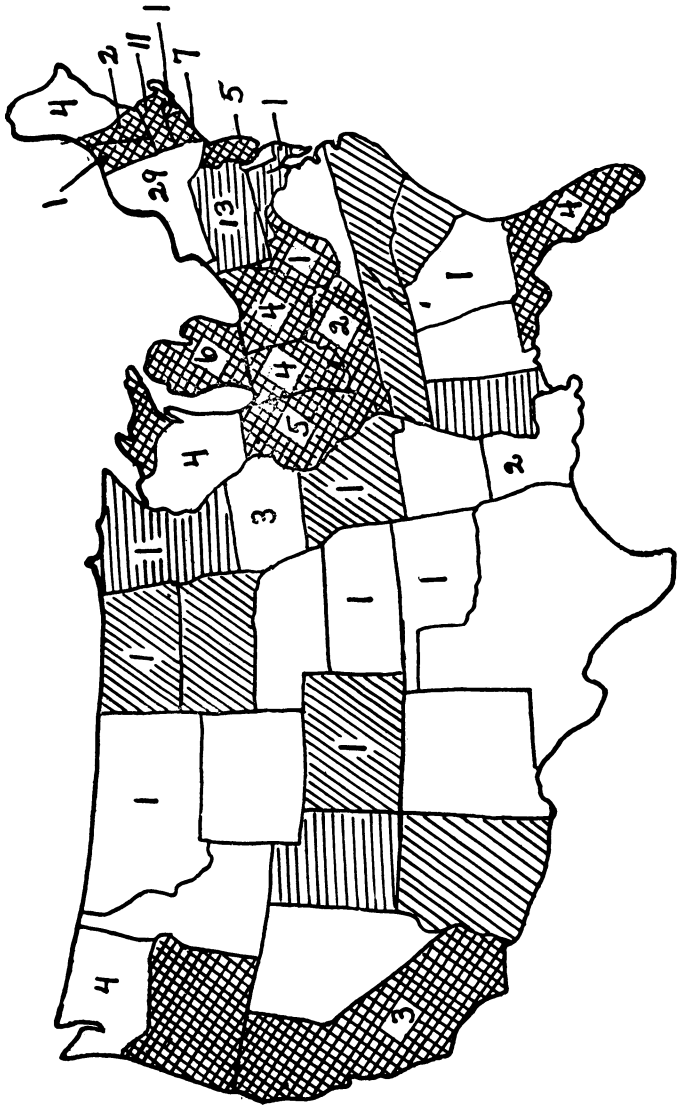

FIG. 1. Map showing distribution of State Audubon Societies and local clubs affiliated with the National Association. Numbers indicate local organizations affiliated in 1921. Double cross lines indicate state societies submitting reports in 1917, 1918 and 1921; single diagonal lines, report for at least one year; horizontal lines, affiliation for at least one year but no report submitted.

with the lowest showing on the map, only 7 have over 1000 Juniors in 1921; only one of the latter (Nebraska) has over 2000 and the average of the 18 is about 900. For 15 states having 3 or more local clubs, the average is over 8000, only one (Maine) having less than 4000.

The reasons for such distribution seem to be several, and to relate to both bird and human population. The following list may be useful as a basis for study:

1. People—number, character and education.
2. Birds—number, whether resident or migratory.
3. Environment—topography, plants, climate.

These conditions are rather complex, one often affecting one or more of the others. Density of population is probably more important than any other single one, since only a certain number of people may be expected to be naturally interested in birds. This proportion increases to a certain extent with education and may also vary in different sections according to the character of the population. Comparing the map of density of population (Literary Digest for Oct. 29, 1921) with the one here presented, a fairly close agreement is noted. Bird study runs lower in the south-eastern states except Florida where it is higher. It is high also in Indiana, Michigan, etc. These differences can probably be accounted for by character of population.

As to number of birds, migration plays a prominent part. Of the 1200 kinds of birds found in the United States and Canada, one-fourth or more may be seen in a single state. The phenomenon of migration makes one of the strongest appeals to the mind of man but it is to the majority of people of more temporary interest than the study of nesting habits. Thus while migration adds very greatly indeed to interest in birds, the matter of summer residence probably offers the strongest permanent interest. The counts thus far made have indicated a higher number of summer residents for the eastern states.

The character of the country has important influences of many kinds. Lack of trees and especially of thickets reduces the number of tree nesting species. A country of varied topography will have many kinds of birds as there will be ponds for water birds, meadow or prairie for ground dwellers, tall

trees, bushes, bank, cliffs or caves for their respective kinds. Such country offers also a greater variety of plants, insects and other animals which furnish food supplies. Trees, while desirable, have limitations. A dense forest, especially, is composed of only a few kinds of trees, offers only a limited range of conditions and may be as barren of birds as the treeless plain. Fortunately the effect of such conditions often is relieved by proximity of areas of different type.

Climate is important as determining the distribution of birds. It controls their study as well to a considerable extent. The majority of people interested in birds are those who are drawn afield by pleasant weather rather than those who are out regardless of the temperature and moisture. The northern plains in winter or the southern plain in summer offer conditions which are favorable to neither bird nor student.

Changes in population affect also the bird population. This greatly decreases the numbers of certain species (indeed we regret that it has even caused complete extinction of some), but has the opposite effect on others. With an even moderate protection any locality should retain an interesting bird life. The writer has felt that often the greatest need of bird study is for people with natural ability to direct the work. With less capable leaders much more time and energy must be used. This suggests that it is desirable to try especially to interest those who show such ability in other work.